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By-Morrison, Coleman; And Others

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Among the CRAFT project total population of 1,378 disadvantaged urban children, 58, or 4 percent, were identified at the beginning of first grade as early readers on the basis of their ability to identify words in print. All children in the study were taught to read by either the Skills Centered or the Language Experience Approach. Achievement tests administered over the 3-year period included the Murphy-Durrell Reading Readiness, the Metropolitan Reading Readiness, the Thurstone Pattern Copying and Identical Forms, the Stanford Primary I Achievement, the Metropolitan Primary I Achievement (Form B), the Metropolitan Advanced Primary Achievement (Form C), the Metropolitan Primary II Achievement (Form B), the New York State tests of word recognition and comprehension, and the Metropolitan Elementary Achievement (Form A). In addition, the San Diego County Inventory of Reading Attitude and a second-grade teacher evaluation of eagerness to read and maturity of reading choices were administered. Early readers entered school with a highl y significant advantage in reading readiness and in reading ability that they maintained over a 3-year period. When the early readers were compared on the basis of approach there was no significant difference. Tables and references are included. (CM)

DIVISION OF TEACHER EDUCATION OF THE CITY UNIVERSITY OF NEW YORK
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RESEARCH REPORT

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A COMPARISON OF THE READING PERFORMANCE OF EARLY AND NON-EARLY READERS FROM GRADE ONE THROUGH GRADE THREE*

Coleman Morrison
Albert J. Harris
Irma T. Auerbach

The City University of New York

U. S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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Coleman Morrison, Albert J. Harris, and Irma T. Auerbach
The City University of New York

Much of the concern related to early reading has been directed at the age when young children can be taught to read and specifically with the question: Can five-year olds be taught to read? Most frequently answers to this question are in the affirmative. As early as 1931 the issue was being explored and at that time Davidson[1] reported teaching word recognition skills to three groups of preschool children; bright three's, normal four's, and dull five's. The Davidson study is not only interesting because of its findings, but because of its timing. During the same year the Morphett-Washburne[2] study of early reading was published with the recommendation that a mental age of 6.5 was a prerequisite for success in beginning reading, a finding that is still quoted to this day. In 1936 Gates and Bond[3] reported that certain five-year olds had been taught to read in a study conducted by them. At the time they concluded, "Statements concerning the necessary age at which a pupil can be expected to learn to read are meaningless. The age for learning to read under one program or with the method employed by one teacher may be entirely different from that required under other circumstances."

Questions pertaining to early reading remained somewhat dormant for the next decade or so, but were revived in a study carried out in Scotland by Taylor[4] in 1950. In one of the largest studies of the teaching of reading to young children, Taylor revealed that the subjects of his investigation were able to make reasonable progress in learning to read before six years of age. Following a lapse of another decade several experimental studies in this country were also undertaken to determine early reading practices. A study by Durkin[5] disclosed that slightly less than one percent of the

population tested in the Oakland, California schools were considered to have reading ability before they came to school and three percent of the children in her New York City study had similar preschool reading ability. Other experiments by Moore[6] and by the Denver Public Schools[7] indicated that some children in the three, four, and five-year old age levels could be taught to read. The evidence seems, therefore, to confirm the thesis that some young children, though undoubtedly not all of them, can be taught to identify words prior to the time they come to school.

With the exception of the Durkin study none of those reported attempted to determine follow-up effects of the early reader. In the absence of such information opponents of teaching children to read at an age earlier than is presently customary maintain that there is no justification for teaching reading before first grade because no permanent advantage accrues to early readers. This group also maintains that delayed instruction is not disadvantageous and frequently quote a study by Bradley[8] in which the effects of delaying reading by five, eight, and ten months for three experimental groups of first-grade children were tested. The results of the study disclosed that the experimental group were found to be behind the control group at the end of the first year, equal to them by the end of the second grade, and beyond them the following year. This led Bradley to conclude: "Early direct practice may result in only apparent gain, whereas practice in the less complex components will be more meaningful and more satisfying."

Results of the Bradley study must, however, be interpreted with considerable caution. For one thing, the experimental group worked with one teacher over a two-year period, whereas children in the control classes were taught by different faculty in succeeding years. In a research study of this nature the use of teacher cycling for one group and not the other could

well have aided the progress of the experimental group. Second, the control classes apparently received no readiness training whatsoever, but, rather, were inducted into a program of "formal, systematic instruction immediately." Such a program violates existing concepts of readiness and negates the advantages of providing for individual differences.

Another study, by Keister,[9] poses a similar question: Is it worth the effort to teach young children to read? The results indicate that while it is possible for children with a mental age of less than six years to acquire fundamental reading skills in the first grade, "the skills lack permanence and tend to disappear during the summer months between grades 1 and 2." Keister reports that this loss is never regained during subsequent teaching. An aspect of this study that should be noted is that by the end of the first year the three groups of children participating in the project had mean achievement scores of 2.7, 2.9, and 3.2. Since mean mental ability scores of the population were only slightly in excess of their chronological age (5.9 versus 5.7) at the beginning of the study it is unusual that their first grade posttest scores would average more than a year higher than either their expectancy reading level or national norms. Under these circumstances it is perhaps not surprising that subsequent performance was not commensurate with first year achievement.

The present study, which is part of the larger CRAFT Project,[10] was not concerned with the "when" or the "how" of early reading but rather the subsequent reading performance of children who were identified as having some word recognition ability at the time they entered first grade. An investigation was made to analyze particular strengths and weaknesses within this group and to compare their achievement in reading to that of the total CRAFT population over a three-year period. A study was made of selected achieve-

ment variables as well as attitudes toward reading and the quality and extent of their reading.

Population

When the CRAFT Project was initiated in September, 1964, 1,378 children took part in the study. Of this group, 58, or four percent, were identified as early readers by their teachers at the beginning of first grade. These children were selected on the basis of their ability to identify words in print, no matter how few.*

To reinforce the subjective evaluation of teachers the Detroit Word Recognition Test was administered to the selected early readers. Of the 39 children who took the test, 32 were able to identify one or more words on the test, and the group as a whole had a median score of four correct words which placed them in the 75th percentile. The seven children who did not identify any of the words on the Detroit test, as well as the 19 children who did not take the test, were kept in the study population on the basis of results of other pre-first grade test data.

Instructional Program

All the children in the study were taught to read by one of two approaches, Skills Centered or Language Experience. Within each of these approaches there were two methods. Children in the Skills Centered Approach were taught either by a Basal Reader Method, which followed the traditional basal reading program, or by a Phonovisual Method, which combined use of basal readers with a phonic system taught separately. Within the Language Experience Approach children were instructed either by the Language Experi-

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*The term "early readers" was used initially in the CRAFT study for communication and labelling purposes and the usage of the term has been perpetuated in this report. However, the authors recognize the fact that word identification constitutes only one aspect of the reading act and that the term "reader" may be inaccurate in characterizing the reading abilities of some of the children in the study population.

Method in which the reading materials were developed from the experiences and verbalizations of the children, or by the Language Experience Method supplemented by use of audio-visual equipment such as tape recorders, cameras, and projectors. Both of these methods also relied extensively on an individualized reading program.

Since the early readers were identified shortly after the study began, and after children had been assigned to approaches and methods, no effort was made to redistribute the group. As a result there were eight more early readers in the Skills Centered Approach than in the Language Experience Approach. No further breakdown was made of these children by methods because of the low numbers involved. Thus, analysis of the data includes comparisons between early readers in the two approaches.

Those early readers assigned to a particular reading approach at the beginning of the first grade continued to receive instruction in the same approach during the second grade. However, at the third grade level, no control was exerted over the approach used by classroom teachers. It is probably safe to assume that in the third grade children were taught by an approach which closely approximated a Skills Centered form of instruction, since basal readers were the chief tool of instruction in the New York public schools at the time the study was being undertaken.

Teachers

Teachers who participated in the study showed a wide range in such variables as age, amount of education, total years of teaching experience, years of experience in the grade and attitudes toward the approach they were teaching. However, in the final CRAFT report it was pointed out that such variables "showed generally low and non-significant relationships with

learning outcomes." The report drew the further conclusion that, "these characteristics, which were well equated among the methods, did not materially affect the comparisons of methods and approaches."[11]

Tests

Information concerning pupil achievement at the beginning of first grade was gathered from results of the Murphy-Durrell Reading Readiness tests, from the word meaning and listening subtests of the Metropolitan Reading Readiness Test, and from the Thurstone Pattern Copying and Identical Forms Tests. At the end of the first grade the Stanford Primary I Achievement Test, Form X (consisting of five subtests: word reading, paragraph meaning, vocabulary, spelling, and word study skills), was given.

In the second grade the Metropolitan Primary I Achievement Test, Form B (measuring word knowledge and reading), was administered in October, and in April, Form C of the Metropolitan Advanced Primary Achievement Test was given. At that time four subtests were administered: word knowledge, word discrimination, reading, and spelling.

At the third grade level, scores were analyzed on the basis of October and April tests. In October, the Metropolitan Primary II Achievement Test, Form B (word knowledge and reading subtests), was administered, along with the New York State tests of word recognition and comprehension. In April, scores were compared on the basis of results from the Metropolitan Elementary Achievement Test, Form A, which measured word knowledge and reading.

In addition to these achievement tests, three other instruments were used to measure related aspects of achievement. An Inventory of Reading Attitude, devised in San Diego County was administered to all CRAFT participants at the end of both the first and second grades. And, at the end of the second grade teachers evaluated each child in their classes with respect to their eagerness to read and the maturity of their reading choices.

Statistical Analysis

In analyzing the results, means and standard deviations were derived from test scores. Means were converted into grade equivalent scores and values were obtained for comparisons between the total CRAFT population and early readers, between early readers in the Skills Centered and Language Experience Approaches, and between an equal number of early readers and non-early readers matched on the basis of scores attained on the learning rate subtest of the Murphy-Durrell Diagnostic Reading Readiness Test. Since the study deals with varying numbers of children in both the early reader and total population groups, the individual pupil was used as the statistical unit.

Results

When the pretests were administered to the total CRAFT population in the Fall of 1964, early readers showed an advantage over the total group on all tests significant at the .001 level (Table 1). They had unusually high results on the subtests of the Murphy-Durrell with mean scores averaging twice as high as those of the total population. In particular, early readers had mean scores of 22 and 18 on capital and lower case letter name knowledge respectively as compared to scores of 11 and 9 on the same tests for the larger group of students. Since recent studies seem to indicate that letter name knowledge is likely to provide the most accurate prediction of success in subsequent reading it might be expected from these results that the early reader group would do significantly better than their peers at the conclusion of the year. This assumption was born out when one examines mean raw scores and grade equivalent scores made by both groups on the Stanford posttests (Tables 2 and 3). Near the end of first grade, early readers scored significantly better than the total group on all five subtests, and when the mean scores were converted into grade equivalent scores (Table 3) their advantage averaged four months. On four of the five Stanford tests the early readers surpassed national norms, and on the fifth, paragraph meaning, they scored

at the mean. On the other hand the highest mean grade score achieved by the total population was 1.6 in spelling.

Slightly different results were obtained when analysis for the total sample and early readers was made on the basis of approach. Early readers in the Language Experience Approach showed an advantage significant at the .001 level on all first grade pre- and posttests except the Murphy-Durrell subtest of lower case letter names where the significance was at the .01 level (Table 4). Comparisons of the Skills Centered group with the larger group showed other slight changes (Table 5). Here the early readers held significant advantages at the .001 level on all pre- and posttests except two. On the word meaning subtest of the Metropolitan Readiness Test they were significantly better than the total population at the .05 level, and on the listening subtest of the same test at the .01 level.

A comparison between early readers in the Skills Centered and early readers in Language Experience Approach indicates a similarity between the two groups on almost every test (Tables 6 and 7). Only on the word meaning subtest of the Metropolitan Readiness Test was there a significant difference favoring one of the groups, and on that test early readers in the Language Experience Approach had slightly higher scores, significant at the .05 level. A statistical analysis of posttests results (Table 7) indicates no significant differences favoring either group, although when mean scores are converted into grade equivalent scores (Table 8) Skills Centered early readers held a one-month advantage over Language Experience early readers on the paragraph meaning subtest of the Stanford and two months on the spelling subtest. Language Experience early readers had slightly higher mean scores, by one month, over their peers in the Skills Centered program on the word study skills subtest. There were no differences in grade equivalent scores on word reading or vocabulary subtests.

In October of the second year, test scores on the Metropolitan revealed that both groups, early readers and total population, had higher grade equivalent scores than they had the previous April. Early readers had mean grade scores of 2.4 on word knowledge and 2.3 on reading, while the total population had means of 1.7 on both tests (Table 9). These gains represent an average of about five months for the early readers and about three months for the total population between the April and October testing periods, suggesting that there was little, if any, loss of reading skills over the summer months for either group. It should be noted, however, that the Stanford test (administered in April) is thought to produce lower scores than the Metropolitan test (administered in October). Nevertheless, results of the October testing reveals that the early readers not only continued to maintain their superiority over the total population but increased their achievement by several months. At that time the early readers had a seven months' lead over the total population on the word knowledge subtest and a six months' advantage over the larger group on the reading subtest.

By the end of the second grade early readers had a substantial achievement advantage over the total population, with mean grade scores of 3.3 on four subtests of the Metropolitan as compared with means of 2.4 for the total CRAFT population (Table 10). It can be noted in the same table that early readers evidenced a much wider range of scores on the subtests than did children in the total group. Grade equivalent mean scores for the former group ranged from a low of 2.9 on the reading subtest to a high of 3.6 on the spelling subtest, whereas scores for the latter group differed by only one month for all four subtests. In both groups scores were lowest on the reading subtest, which is a measure of the child's ability to derive meaning from the printed word. The fact that early readers had considerably higher

scores on word identification subtests than on comprehension may indicate that at that grade level the instructional program was geared more toward word recognition abilities than toward comprehension skills; alternatively, and more plausibly, this may reflect the educational disadvantage common to the whole population.

All of the April posttest differences between early readers and the total population were highly significant at the .001 level or the .01 level (Table 11).

When the early readers were compared on an approach basis at the end of Grade 2, Skills Centered early readers had higher mean scores on the word knowledge, word discrimination, and spelling subtests, and Language Experience Approach early readers had a higher mean score on the reading subtest (Table 12). However, none of these differences was statistically significant, and when the mean scores were converted into grade equivalent scores the differences favoring either group never exceeded one month (Table 13).

In October of the third year, when the word knowledge and reading subtests of the Metropolitan were again administered, both groups of children had higher grade equivalent scores than during the previous April (Table 14). For the early readers the increment amounted to one month on both word knowledge and reading. Thus, the early readers, while maintaining their advantage over the total CRAFT population in recognition skills, did not increase the advantage they held the previous April, while in comprehension scores they lost some ground to the total group over the summer months. Nevertheless, early readers' scores were significantly better at the .01 level than the mean scores made by the larger CRAFT group (Table 15). Results of New York State tests, given in October of the same year, also indicate a statistically significant difference favoring the early readers on word recognition and comprehension subtests at the .01 level (Table 16). Grade equivalent scores were not available for these results.

When the early readers were again grouped according to approach, those in the Skills Centered classes did significantly better than the total Skills Centered group on the subtests of both the Metropolitan and New York State Tests at the .01 level (Table 17). The early readers in Language Experience classes were statistically better at the same level of significance except on the comprehension subtest of the New York test, where their mean score was significantly better at the .05 level (Table 18).

When comparisons were made between the two groups of early readers on both the Metropolitan and New York State tests in October the Skills Centered children did slightly better on all subtests except Metropolitan word knowledge, although none of the differences were significant (Table 19).

Near the end of the third grade early readers had mean scores on word knowledge and reading subtests of the Metropolitan that were significantly better than mean scores made by the total group at the .01 level of significance (Table 20). Similarly, early reading children in each of the two approaches outscored the larger group and their advantage was significant at the .01 level (Tables 21 and 22).

Converting April test scores into grade equivalents, the early readers averaged 4.3 on the two subtests, as compared to 3.3 for the total CRAFT population (Table 23). It should be noted that comprehension scores, which were lower for both groups at the end of the second grade, remained lower for the early readers at the end of the third grade, although the difference between comprehension and word knowledge was reduced to two months. A different situation existed for the total group. Whereas their comprehension scores were one month lower than word knowledge scores at the end of the second grade, the reverse was true by April of the third year.

Consistent with patterns of previous grades there were no significant differences between early readers in either the Skills Centered or Language

Experience groups when their mean scores were analyzed statistically (Table 24). However, when translated into grade equivalent scores the Language Experience children held a six-month advantage over Skills Centered early readers on the word knowledge subtest and five months on the reading subtests (Table 25).

Thus, at the end of the third grade, early readers achieved an impressive advantage on reading subtests when compared to the total population and early readers in the Language Experience Approach achieved higher scores than those in the Skills Centered Approach.

Table 26 provides grade equivalent scores over the three-year period and differences over that period of time between the total population and early readers. During the first year of the study there was a range of difference between the total population and the early readers from two months, in paragraph meaning, to five months, in word reading, favoring the early readers. At the end of the second grade, early readers surpassed the total population by eight months in word knowledge, one year and one month in word discrimination and six months in reading. For the two subtests that were again administered at the end of the third grade an increased difference score was seen. The difference favoring the early readers in word knowledge rose to one year and one month, and the difference in reading was eight months.

Although different forms of the Metropolitan Test were administered during the second and third grades, scores on the basis of grade equivalents should be comparable and could thus give an indication of rate of growth. It can be seen that the total population gained nine months in word knowledge from the second- to third-grade testing. The early readers gained one year and two months on the same subtest in the same period of time. Similarly,

on the reading subtest the total population grew from 2.3 in 1966 to a mean grade equivalent of 3.4 in 1967 demonstrating an increase of one year and one month. The difference on the reading subtests for the early readers was one year and three months in the one-year period.

Table 27 shows a progressive review of the differences between the Language Experience and Skills Centered Approach groups. Clearly at the end of the first grade the groups were essentially alike on the basis of mean grade equivalents; although there was a difference of one month on paragraph meaning favoring the children in the Skills Centered Approach.

At the end of the second grade there was a difference of one month favoring the Skills Centered group in word knowledge, no difference between the groups on word discrimination and a one-month difference favoring the Language Experience group in reading.

On the third-grade level the greatest differences are visible. The Language Experience Approach children achieved six months higher in word knowledge and five months higher in reading than the Skills Centered group. A survey of the rate of growth from the second to third grade indicates that the Skills Centered group advanced nine months in word knowledge and one year three months in reading. The Language Experience group advanced one year six months in word knowledge and one year seven months in reading between the testing sessions.

In a supplementary study designed to determine the respective growth patterns of early readers and an equal number of non-early readers matched on the basis of identical scores attained on the learning rate subtest of the Murphy-Durrell Diagnostic Reading Readiness Test early readers held a significant advantage over their peers on a majority of measures tested over the three-year period. At the end of the first year the results favoring the

early readers were significant at the .01 level on four of the five subtests of the Stanford Achievement Test and on the fifth, vocabulary, at the .05 level (Table 31). The differences in grade equivalent scores ranged from a low of two months on the paragraph meaning subtest to a high of four months on the spelling subtest. Average reading achievement for the early readers was 1.8 as opposed to 1.6 for the matched group (Table 32).

All six second-grade measures favored the early reading group, but only half of these results were significant, all three at the .05 level (Table 33). When raw scores were converted into grade equivalent scores the early readers were consistently higher on all measures. In October they had a six- and five-month advantage over the matched group on word knowledge and reading subtests respectively, and in April the average advantage held by the early readers was five months (Table 34).

Third-grade comparisons again reveal superiority of early readers on all subtests, and in every instance the differences were significant (Table 35). On grade equivalent scores the early readers maintained their five-month average advantage over the matched group in October and increased that advantage to approximately one year when posttests were administered in April (Table 36).

Attitude

By the end of the first grade, early readers demonstrated a significantly greater affinity for reading than the total CRAFT population (Table 28).

In total CRAFT, children taught by the Skills Centered Approach showed a somewhat stronger liking for reading than those taught by Language Experience; whereas, early readers taught by Language Experience responded with higher scores than early readers in the Skills Centered Approach.

At the second-grade level no significant differences could be demonstrated between early readers and total CRAFT by approach. Lack of

significance is at least partially due to the decreased number of children remaining in the CRAFT study by the end of the second year. When both approaches were combined, however, a difference significant at the .05 level favoring the early readers was evident.

The same table reveals that a reversal occurred both within total CRAFT and among early readers with respect to attitude toward reading. In the total CRAFT population, Language Experience children liked reading more than Skills Centered children; while among early readers it was the Skills Centered group that indicated a greater liking for reading.

The increment in preference related to reading for CRAFT was more than twice the increment for early readers. The total CRAFT group moved from a mean of 15.91 in the first grade to 18.83 in the second, indicating a gain of 2.92 points. The gain for early readers was only 1.17. However, the value of the early reader mean was 20.27 or 1.44 points above that of the total population at the end of grade 2.

When results for early readers and the matched group are compared (Tables 31 and 33), the former group had higher mean scores at the end of both the first and second grades, although only first-grade scores were significant.

Eagerness to Read

Results of teachers' ratings of eagerness to read can be seen in Table 29. Fifty-four per cent of the early readers were rated in the category of "almost always chooses to read." The total CRAFT group received the above rating about half as often. No early readers were rated as "practically never choosing to read"; as opposed to 16 percent of the children in the total CRAFT group who received that rating. The percentage of early readers rated as choosing to read "often" was three times that for the total CRAFT population. A greater percentage of children in total CRAFT tended to read

"about half the time," and "seldom."

Teachers rated early readers as being more eager to read than the matched group, but this difference was not significant (Table 33).

Choice of Books

A much greater percentage of early readers were rated as choosing books "far above grade level." Although this held true for both approaches, more Skills Centered than Language Experience children chose advanced books (Table 30). In the Skills Centered Approach the greatest percentage of total CRAFT was concentrated in the "at grade level" category, the next greatest percentage was rated at "far below" and the third largest category was "far above." The early readers in that approach were concentrated in "far above," the next largest category was "at grade level" and the third largest concentration was rated at "far below."

The Language Experience Approach pattern of ratings for total CRAFT had a sequence identical to that of the Skills Centered Approach. Early readers on the other hand had a different sequence in the Language Experience Approach. The largest percentage of early readers was noted as reading "at grade level." The next largest concentration of ratings was "far above grade level" and the third largest rating category was "slightly above grade level." There were no early readers in this approach who scored "far below grade level."

The sequence for total CRAFT with both approaches combined was the same as for the individual approaches. Early readers for both approaches combined demonstrated the same sequence of ratings as the Language Experience group. The choice of books selected by early readers was higher than that of the matched group, significant at the .05 level (Table 33).

Summary and Conclusions

Early readers entered school with a highly significant advantage in reading readiness and in reading ability that they maintained over a three-year period. At the beginning of first grade there was only one difference between the early readers in the two approaches. Essentially early readers taught by the Language Experience and Skills Centered Approach could be considered equal at the beginning of school.

At the end of the first grade the advantage of the early reader remained evident. Slight differences began to emerge between the early readers in the two approaches. Skills Centered children achieved slightly higher than Language Experience children on two subtests. The reverse was true on one subtest. There was not as yet a clear pattern, however.

Second-grade testing again demonstrated the significant differences in reading ability between the early readers and the total CRAFT population. Differences between early readers in the two approaches were not statistically significant. This time, however, two subtests favored the Language Experience Approach while only one favored the Skills Centered Approach.

In the third grade all test differences between early readers and the total CRAFT population were significant and favored the early readers. When the early readers were compared on the basis of approach there was no significant difference.

The general trend throughout has been that early readers achieved higher than the entire CRAFT population on all reading subtests and through all three years. Comparisons on the basis of approach showed that there was no significant difference between early readers taught by one approach and those taught by another any time during the three years. Slight differences between the approaches were observed on the basis of grade equivalents. These

differences demonstrated a slight advantage for the Skills Centered Approach in the first grade, an even distribution in the second grade and the largest differences favoring the Language Experience Approach in the third grade.

The results of the third-grade situation indicate that a considerably greater gain was evident in that year in achievement for children previously in the Language Experience method, the indication possibly being that an initial program of Language Experience instruction combined with a random variation of the Skills Centered Approach at the third-grade level produced optimal results with these disadvantaged urban children.

Although the early readers were able to maintain and increase their advantage in reading proficiency, the growth of their interest in reading from the first to the second grade was considerably smaller than that of the total CRAFT population probably indicating a loss of motivation on the part of some early readers. Unfortunately it was not within the scope of this study to follow the growth of their interest in reading beyond the second grade.

At the first-grade level, children of the Skills Centered group in the total population may have preferred reading since the skills they were learning were closely related to the books available to them. However, children in the Language Experience group may have encountered difficulty in mastering reading books because of the experiential sequence of their skill instruction.

Among early readers the reverse findings may confirm the hypothesis that having started reading instruction in probably an experiential manner at home, these children may have felt more familiar and comfortable with the Language Experience Approach.

Second-grade children in the total population and instructed in the Language Experience Approach may have accumulated enough skills to master reading

materials. They seem to maintain a broader scope of interest which may have resulted in their liking reading much more.

On the contrary, early readers who had sequential instruction of skills in the first grade could master books quite well at the second-grade level and increased their liking for reading, while early readers taught by Language Experience probably encountered quite a bit of difficulty with standardized readers. They were the only group that actually decreased in their liking of reading.

Results demonstrated quite clearly that early readers are more eager to read than a control population, particularly those in the Language Experience Approach who were taught and motivated by experiential teacher-made materials.

Similarly early readers tend to make more mature reading choices, only in this case, the children in the Skills Centered Approach did considerably better. A possible reason for this advantage may be the sequential approach of word attack skill instruction which is related to most published reading matter.

In a related analysis, early readers also achieved significantly higher results than a group of non-early readers matched on the basis of identical scores achieved on the learning rate subtest of the Murphy-Durrell Readiness Test.

What all of the foregoing suggests is that some disadvantaged children who enter first grade have some word recognition skill which they have acquired in the home, or from some form of pre-school education other than public kindergarten. This finding appears to substantiate previous research studies on the subject of early readers. It also reinforces a finding by Durkin that some children coming from homes other than those identified as being in the middle or upper socio-economic income level do enter first grade with measurable reading abilities.

In addition, the present study indicates that, as far as the children in the CRAFT Project were concerned, the advantages that they maintained at the beginning of the study persisted and grew throughout the three years of the study. Indeed, through the years early readers tended to increase their achievement advantage over the total CRAFT population, as well as over the matched group, indicating that reading skills taught prior to the time the child enters first grade are not detrimental to long range achievement. The results suggest the desirability of trying systematic reading instruction for children with superior reading readiness in kindergarten.

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11. Ibid., p. 138.

Table 1

Means, Standard Deviations, and t Tests for Total Population and Early Readers on Pretests, Grade 1

Subtest	Total CRAFT			Early Readers			t
	N	Mean[a]	S.D.[a]	N	Mean[a]	S.D.[a]	
Murphy-Durrell							
Phonemes	993	9.86	8.54	51	22.93	13.27	10.83***
Capital Letter Names	1,007	11.21	8.85	49	21.82	6.24	8.31***
Lower Case Letter Names	793	8.90	7.21	35	17.71	6.96	7.13***
Total	795	20.33	15.44	36	39.72	13.12	7.43***
Learning Rate	1,064	8.16	4.03	55	12.09	4.23	7.17***
Metropolitan Readiness							
Word Meaning	1,124	5.25	2.28	56	6.96	3.01	5.57***
Listening	1,125	6.79	2.58	56	8.77	2.28	5.71***
Thurstone							
Pattern Copying	1,062	2.68	3.84	56	5.95	5.01	6.32***
Identical Forms	1,102	5.36	6.16	56	10.71	7.23	6.44***

[a] Weighted

*** $P < .001$

Table 2

Means, Standard Deviations, and t Tests for Total Population and Early Readers on April Stanford Achievement Test, Grade 1

Subtest	Total CRAFT			Early Readers			t
	N	Mean	S.D.	N	Mean	S.D.	
Word Reading	1,127	13.42	6.38	51	23.02	7.43	10.64***
Paragraph Meaning	1,111	10.17	7.26	51	20.21	10.64	9.78***
Vocabulary	1,113	14.35	5.41	51	19.02	6.77	6.10***
Spelling	1,101	6.51	5.62	51	12.96	5.75	8.12***
Word Study Skills	1,111	25.98	9.05	51	37.02	10.79	8.63***

*** P < .001

Table 3

Grade Equivalents for Total Population and Early Readers on April Stanford Achievement Test, Grade 1

Subtest	Total CRAFT	Early Readers
Word Reading	1.4	1.9
Paragraph Meaning	1.5	1.7
Vocabulary	1.4	1.8
Spelling	1.6	2.0
Word Study Skills	1.4	1.9

Table 4

Means, Standard Deviations, and t Tests for Total Population and Early Readers in the Language Experience Approach on Pretests and Posttests, Grade 1

Test	Total CRAFT			Early Readers (Lang. Exp. Appr.)			t
	N	Mean[a]	S.D.[a]	N	Mean	S.D.	
Pretests							
Murphy-Durrell							
Phonemes	517	9.67	8.31	23	21.57	10.94	6.72***
Capital Letter Names	502	10.99	8.76	22	20.91	7.16	5.19***
Lower Case Letter Names	407	8.85	7.42	14	17.43	7.16	4.17**
Total	407	20.00	15.56	14	39.00	14.27	4.40***
Learning Rate	521	7.93	4.00	24	11.96	3.68	4.83***
Metropolitan Readiness Test							
Word Meaning	559	5.35	2.32	24	8.00	2.90	5.49***
Listening	559	6.71	2.66	24	9.39	2.17	4.84***
Thurstone							
Pattern Copying	522	2.85	4.13	24	6.67	5.20	4.44***
Identical Forms	536	5.66	6.29	25	10.88	6.53	4.06***
Stanford Posttests							
Word Reading	559	12.36	6.01	20	23.75	6.96	8.26***
Paragraph Meaning	551	8.94	6.59	20	17.85	10.78	5.89***
Vocabulary	557	13.87	5.44	20	18.85	7.04	3.99***
Spelling	547	5.86	5.35	20	11.70	6.21	4.76***
Word Study Skills	553	24.73	8.93	20	39.25	8.26	7.09***

[a] Weighted

** $P < .01$
*** $P < .001$

Table 5

Means, Standard Deviations, and t Tests for Total Population and Early Readers in the Skills Centered Approach on Pretests and Posttests, Grade 1

Test	Total CRAFT			Early Readers (Skills Ctd. Appr.)			t
	N	Mean[a]	S.D.[a]	N	Mean	S.D.	
Pretests							
Murphy-Durrell							
Phonemes	476	10.07	8.78	28	24.04	14.82	8.27***
Capital Letter Names	505	11.43	8.94	27	22.56	5.27	6.35***
Lower Case Letter Names	386	8.96	6.99	21	17.90	6.82	5.72***
Total	388	20.68	15.30	22	40.18	12.31	5.84***
Learning Rate	543	8.39	4.04	31	12.19	4.60	5.16***
Metropolitan Readiness Test							
Word Meaning	565	5.15	2.23	32	6.19	2.86	2.60*
Listening	566	6.87	2.50	32	8.31	2.24	3.21**
Thurstone							
Pattern Copying	540	2.52	3.54	32	5.41	4.80	4.55***
Identical Forms	566	5.07	6.03	31	10.58	7.74	5.01***
Stanford Posttests							
Word Reading	568	14.46	6.56	31	22.55	7.68	6.76***
Paragraph Meaning	560	11.39	7.68	31	21.74	10.27	7.38***
Vocabulary	556	14.84	5.34	31	19.13	6.59	4.40***
Spelling	554	7.16	5.81	31	13.77	5.27	6.24***
Word Study Skills	558	27.22	9.00	31	35.58	11.92	5.09***

[a] Weighted

* $P < .05$
** $P < .01$
*** $P < .001$

Table 6

Means, Standard Deviations, and t Tests for Early Readers on Grade 1 Pretests, by Approach

Test	Skills Centered			Language Experience			t
	N	Mean	S.D.	N	Mean	S.D.	
Murphy-Durrell							
Phonemes	28	24.04	14.82	23	21.57	10.94	.67
Capital Letter Names	27	22.56	5.27	22	20.91	7.16	.88
Lower Case Letter Names	21	17.90	6.82	14	17.43	7.16	.19
Total	22	40.18	12.31	14	39.00	14.27	.25
Learning Rate	31	12.19	4.60	24	11.96	3.68	.20
Thurstone							
Pattern Copying	32	5.41	4.80	24	6.67	5.20	- .91
Identical Forms	31	10.58	7.74	25	10.88	6.53	- .15
Metropolitan Readiness Test							
Word Meaning	32	6.19	2.86	24	8.00	2.90	-2.29*
Listening	32	8.31	2.24	24	9.39	2.17	-1.79
Detroit Word Recognition							
Word Recognition	25	5.08	8.16	14	8.36	6.27	-1.36

* $P < .05$

Table 7

Means, Standard Deviations, and t Tests for Early Readers on Grade 1 Stanford Achievement Posttest, by Approach

Subtest	Skills Centered			Language Experience			t
	N	Mean	S.D.	N	Mean	S.D.	
Word Reading	31	22.55	7.68	20	23.75	6.96	- .56
Paragraph Meaning	31	21.74	10.27	20	17.85	10.78	1.25
Vocabulary	31	19.13	6.59	20	18.85	7.04	.14
Spelling	31	13.77	5.27	20	11.70	6.21	1.20
Word Study Skills	31	35.58	11.92	20	39.25	8.26	-1.27

Table 8

Grade Equivalents for Early Readers on Grade 1 Stanford Achievement Posttest, by Approach

Subtest	Skills Centered	Language Experience
Word Reading	1.9	1.9
Paragraph Meaning	1.8	1.7
Vocabulary	1.8	1.8
Spelling	2.1	1.9
Word Study Skills	1.9	2.0

Table 9

Grade Equivalents for Total Population and Early Readers on October Metropolitan Achievement Tests, Grade 2

Subtests	Total CRAFT	Early Readers
Word Knowledge	1.7	2.4
Reading	1.7	2.3

Table 10

Grade Equivalents for Total Population and Early Readers on April Metropolitan Achievement Tests, Grade 2

Subtests	Total CRAFT	Early Readers
Word Knowledge	2.4	3.2
Word Discrimination	2.4	3.5
Reading	2.3	2.9
Spelling	2.4	3.6

Table 11

Means, Standard Deviations, and t Tests for Total Population and Early Readers on April Metropolitan Achievement Test, Grade 2

	Total CRAFT			Early Readers			t
	N	Mean[a]	S.D.[a]	N	Mean[a]	S.D.[a]	
Approaches Combined							
Word Knowledge	629	18.49	8.94	33	26.79	7.90	5.25***
Word Discrimination	630	22.30	8.75	33	29.88	5.99	4.90***
Reading	628	23.73	11.57	33	34.09	11.34	5.07***
Spelling	626	15.63	9.45	33	24.15	6.10	5.10***
Skills Centered Approach							
Word Knowledge	355	19.15	8.92	17	27.12	8.76	3.57**
Word Discrimination	355	23.13	8.63	17	30.18	6.06	3.27**
Reading	354	24.20	11.48	17	33.06	12.31	3.09**
Spelling	353	16.46	9.52	17	24.35	5.82	3.32**
Language Experience Approach							
Word Knowledge	274	17.63	8.90	16	26.44	6.86	3.83**
Word Discrimination	275	21.24	8.80	16	29.56	5.89	3.66**
Reading	274	23.13	11.65	16	35.19	10.10	4.01**
Spelling	273	14.56	9.24	16	23.94	6.38	3.93**

[a] Weighted

** P < .01
*** P < .001

Table 12

Means, Standard Deviations, and t Tests for Early Readers on Grade 2 Metropolitan Achievement Tests, by Approach

Subtest	Skills Centered			Language Experience			t
	N	Mean	S.D.	N	Mean	S.D.	
Word Knowledge	17	27.12	8.76	16	26.44	6.86	.24
Word Discrimination	17	30.18	6.06	16	29.56	5.89	.29
Reading	17	33.06	12.31	16	35.19	10.10	-.53
Spelling	17	24.35	5.82	16	23.94	6.38	.19

Table 13

Grade Equivalents for Early Readers on Grade 2 Metropolitan Achievement Tests, by Approach

Subtest	Skills Centered	Language Experience
Word Knowledge	3.2	3.1
Word Discrimination	3.5	3.5
Reading	2.8	2.9
Spelling	3.6	3.6

Table 14

Grade Equivalents for the Total Population and Early Readers on October Metropolitan Achievement Tests, Grade 3

Subtest	Total CRAFT	Early Readers
Word Knowledge	2.5	3.3
Reading	2.5	3.0

Table 15

Means, Standard Deviations, and t Tests for Total Population and Early Readers on October Metropolitan Achievement Tests, Grade 3

Subtest	Total CRAFT			Early Readers			t
	N	Mean	S.D.	N	Mean	S.D.	
Word Knowledge	760	19.31	8.96	37	28.14	8.16	5.91**
Reading	766	24.77	11.54	37	35.22	9.24	5.43**

** P < .01

Table 16

Means, Standard Deviations, and t Tests for Total Population and Early Readers on October New York State Tests, Grade 3

Subtest	Total CRAFT			Early Readers			t
	N	Mean	S.D.	N	Mean	S.D.	
Word Recognition	745	12.63	6.74	37	19.49	5.46	6.11**
Comprehension	751	10.65	5.52	37	14.84	6.13	4.55**
Total	740	23.36	11.34	37	34.32	10.59	5.80**

** P < .01

Table 17

Means, Standard Deviations, and t Tests for Total Population and Early Readers in the Skills Centered Approach on October Tests, Grade 3

Test	Total CRAFT			Early Readers (Skills Ctd. Appr.)			t
	N	Mean	S.D.	N	Mean	S.D.	
Metropolitan							
Word Knowledge	760	20.12	8.80	19	28.05	8.08	3.82**
Reading	766	25.64	11.47	19	37.26	7.56	4.30**
New York State							
Word Recognition	745	13.22	6.62	20	19.85	5.41	4.36**
Comprehension	751	10.96	5.34	20	15.65	6.05	3.83**
Total	740	24.16	11.05	20	35.50	10.60	4.47**

** $P < .01$

Table 18

Means, Standard Deviations, and t Tests for Total Population and Early Readers in the Language Experience Approach on October Tests, Grade 3

Test	Total CRAFT			Early Readers (Lang. Exp. Appr.)			t
	N	Mean	S.D.	N	Mean	S.D.	
Metropolitan							
Word Recognition	760	18.45	9.05	18	28.22	8.24	4.45**
Reading	766	23.84	11.55	18	33.06	10.30	3.29**
New York State							
Word Recognition	745	12.01	6.82	17	19.06	5.50	4.13**
Comprehension	751	10.51	5.65	17	13.88	6.18	2.39*
Total	740	22.50	11.58	17	32.94	10.42	3.60**

* $P < .05$
** $P < .01$

Table 19

Means, Standard Deviations, and t Tests for Early Readers on October Tests, Grade 3, by Approach

Test	Skills Centered			Language Experience			t
	N	Mean	S.D.	N	Mean	S.D.	
Metropolitan Achievement Test							
Word Knowledge	19	28.05	8.08	18	28.22	8.24	- .06
Reading	19	37.26	7.56	18	33.06	10.30	1.37
New York State Tests							
Word Recognition	20	19.85	5.41	17	19.06	5.50	.43
Comprehension	20	15.65	6.05	17	13.88	6.18	.85
Total	20	35.50	10.60	17	32.94	10.42	.72

Table 20

Means, Standard Deviations, and t Tests for Total Population and Early Readers on April Metropolitan Achievement Tests, Grade 3

Subtest	Total CRAFT			Early Readers			t
	N	Mean	S.D.	N	Mean	S.D.	
Word Knowledge	820	19.74	10.50	40	30.32	11.59	6.29**
Reading	812	17.64	7.30	40	24.72	8.50	6.06**

** $P < .01$

Table 21

Means, Standard Deviations, and t Tests for Total Population and Early Readers in the Skills Centered Approach on April Metropolitan Achievement Tests, Grade 3

Subtest	Total CRAFT			Early Readers (Skills Ctd. Appr.)			t
	N	Mean	S.D.	N	Mean	S.D.	
Word Knowledge	820	19.71	10.32	22	27.82	11.37	3.60**
Reading	812	17.53	7.04	22	23.04	8.34	3.59**

** P < .01

Table 22

Means, Standard Deviations, and t Tests for Total Population and Early Readers in the Language Experience Approach on April Metropolitan Achievement Tests, Grade 3

Subtest	Total CRAFT			Early Readers (Lang. Exp. Appr.)			t
	N	Mean	S.D.	N	Mean	S.D.	
Word Knowledge	820	19.76	10.69	18	33.39	11.12	5.26**
Reading	812	17.77	7.56	18	26.78	8.24	4.92**

** P < .01

Table 23

Grade Equivalents for Total Population and Early Readers, April Metropolitan Achievement Test, Grade 3

Subtest	Total CRAFT	Early Readers
Word Knowledge	3.3	4.4
Reading	3.4	4.2

Table 24

Means, Standard Deviations, and t Tests for Early Readers on April Metropolitan Achievement Tests, Grade 3, by Approach

Subtest	Skills Centered			Language Experience			t
	N	Mean	S.D.	N	Mean	S.D.	
Word Knowledge	22	27.82	11.37	18	33.39	11.12	-1.52
Reading	22	23.04	8.34	18	26.78	8.24	-1.38

Table 25

Grade Equivalent Comparisons between Early Readers, April Metropolitan Achievement Test, Grade 3, by Approach

Subtest	Skills Centered	Language Experience
Word Knowledge	4.1	4.7
Reading	4.1	4.6

Table 26

Differences in Grade Equivalent Comparisons of Total Population and Early Readers from Grade 1 through Grade 3

Date Given	Test	Total CRAFT	Early Readers	Difference
April, 1965	Stanford			
	Word Reading	1.4	1.9	.5
	Paragraph Meaning	1.5	1.7	.2
	Vocabulary	1.4	1.8	.4
April, 1966	Metropolitan			
	Word Knowledge	2.4	3.2	.8
	Word Discrimination	2.4	3.5	1.1
	Reading	2.3	2.9	.6
April, 1967	Metropolitan			
	Word Knowledge	3.3	4.4	1.1
	Reading	3.4	4.2	.8

Table 27

Differences in Grade Equivalent Comparisons of Early Readers from Grade 1 through Grade 3, by Approach

Date Given	Test	Skills Centered	Language Experience	Difference
April, 1965	Stanford			
	Word Reading	1.9	1.9	0
	Paragraph Meaning	1.8	1.7	.1
	Vocabulary	1.8	1.8	0
April, 1966	Metropolitan			
	Word Knowledge	3.2	3.1	.1
	Word Discrimination	3.5	3.5	0
	Reading	2.8	2.9	.1
April, 1967	Metropolitan			
	Word Knowledge	4.1	4.7	.6
	Reading	4.1	4.6	.5

Table 28

Means, Standard Deviations, and t Tests for Total Population and Early Readers on San Diego Pupil Inventory

Approach	Total CRAFT			Early Readers			t
	N	Mean	S.D.	N	Mean	S.D.	
Grade 1							
Skills Centered	553	16.09	4.85	31	18.22	3.48	-2.41*
Language Experience	535	15.73	5.46	19	20.53	2.95	-3.73**
Total	1,088	15.91	5.16	50	19.10	3.47	-4.33***
Grade 2							
Skills Centered	346	18.69	3.73	17	20.59	3.16	-2.04
Language Experience	272	19.01	3.72	16	19.94	2.84	- .97
Total	618	18.83	3.73	33	20.27	3.03	-2.18*

* $P < .05$
** $P < .01$
*** $P < .001$

Table 29

Teacher Rating of Eagerness to Read

Rating	Per Cent					
	Total CRAFT	Early Readers	Total CRAFT (Skills Ctd.)	Early Readers	Total CRAFT (Lang. Exp.)	Early Readers
Practically never chooses to read	16	0	19	0	12	0
Seldom chooses to read	7	3	8	6	5	0
Chooses to read about half the time	39	21	38	28	40	13
Often chooses to read	9	21	8	17	11	27
Almost always chooses to read	29	54	27	50	32	60

Table 30

Teacher Rating of Maturity of Choices

Rating	Per Cent					
	Total CRAFT	Early Readers	Total CRAFT (Skills Ctd.)	Early Readers	Total CRAFT (Lang. Exp.)	Early Readers
Chooses books far below grade level *	23	6	25	11	20	0
Chooses books slightly below grade level **	6	3	4	0	9	7
Chooses books at grade level	45	36	47	28	44	47
Chooses books slightly above grade level	7	12	5	6	10	20
Chooses books far above own grade level	19	42	19	56	18	27

* a full year or more
** less than one year

Table 31

Means, Standard Deviations, and t Tests for Matched Students[a] on San Diego Inventory and Grade 1 Posttests

	Non-Early Readers			Early Readers			t
	N	Mean	S.D.	N	Mean	S.D.	
San Diego Inventory	31	16.74	4.73	33	18.79	3.22	2.04*
Stanford							
Word Reading	33	15.97	7.65	34	22.91	8.03	3.62**
Paragraph Meaning	32	14.53	8.97	34	21.32	9.74	2.94**
Vocabulary	32	15.56	5.46	34	18.71	5.93	2.24*
Spelling	32	8.13	6.92	34	12.50	5.81	2.79**
Word Study Skills	32	29.16	8.97	34	35.38	11.08	2.50*

[a] Matched on the basis of scores attained on the Learning Rate Subtest of the Murphy-Durrell Diagnostic Reading Readiness Test

* $P < .05$
** $P < .01$

Table 32

Grade Equivalents for Matched Students on April Stanford Achievement Test, Grade 1

Subtest	Non-Early Readers	Early Readers
Word Reading	1.6	1.9
Paragraph Meaning	1.6	1.8
Vocabulary	1.5	1.8
Spelling	1.6	2.0
Word Study Skills	1.5	1.8

Table 33

Means, Standard Deviations, and t Tests for Matched Students on Grade 2 Measures

	Non-Early Readers			Early Readers			t
	N	Mean	S.D.	N	Mean	S.D.	
MAT - October							
Word Knowledge	21	15.24	6.80	25	20.76	6.86	2.73*
Reading	21	19.38	7.88	25	23.72	6.88	2.00
San Diego Inventory	22	18.50	4.46	26	20.23	3.17	1.57
MAT - April Posttests							
Word Knowledge	22	22.27	10.08	26	27.19	8.27	1.86
Word Discrim.	22	24.73	8.58	26	29.81	6.57	2.32*
Reading	22	27.86	13.47	26	34.31	11.87	1.76
Spelling	22	18.41	10.00	26	24.23	6.62	2.41*
Eagerness to Read	22	3.73	1.24	26	4.31	0.93	1.85
Maturity of Choice	22	3.09	1.34	26	4.00	1.10	2.59*

* P < .05

Table 34

Grade Equivalents for Matched Students on Pretests and Posttests, Grade 2

	Non-Early Readers	Early Readers
MAT - October		
Word Knowledge	1.5	2.1
Reading	1.9	2.4
MAT - April Posttests		
Word Knowledge	2.8	3.2
Word Discrimination	2.7	3.5
Reading	2.6	2.9
Spelling	3.0	3.6

Table 35

Means, Standard Deviations, and t Tests for Matched Students on Grade 3 Measures

	Non-Early Readers			Early Readers			t
	N	Mean	S.D.	N	Mean	S.D.	
MAT - October							
Word Knowledge	35	21.11	9.69	34	28.38	7.58	3.46**
Reading	35	27.63	12.66	34	35.85	9.17	3.08**
New York State							
Word Recognition	32	14.00	7.69	36	19.56	5.60	3.43**
Comprehension	32	11.78	6.21	36	15.11	6.12	2.22*
Reading Total	32	25.78	13.12	36	34.58	10.79	3.03**
MAT - Posttests							
Word Knowledge	36	20.81	11.12	39	30.80	11.51	3.82**
Reading	36	18.42	8.27	39	24.80	8.62	3.26**

* $P < .05$
** $P < .01$

Table 36

Grade Equivalents for Matched Students on Pretests and Posttests, Grade 3

	Non-Early Readers	Early Readers
MAT - October		
Word Knowledge	2.7	3.3
Reading	2.6	3.0
MAT - Posttests		
Word Knowledge	3.4	4.5
Reading	3.4	4.2